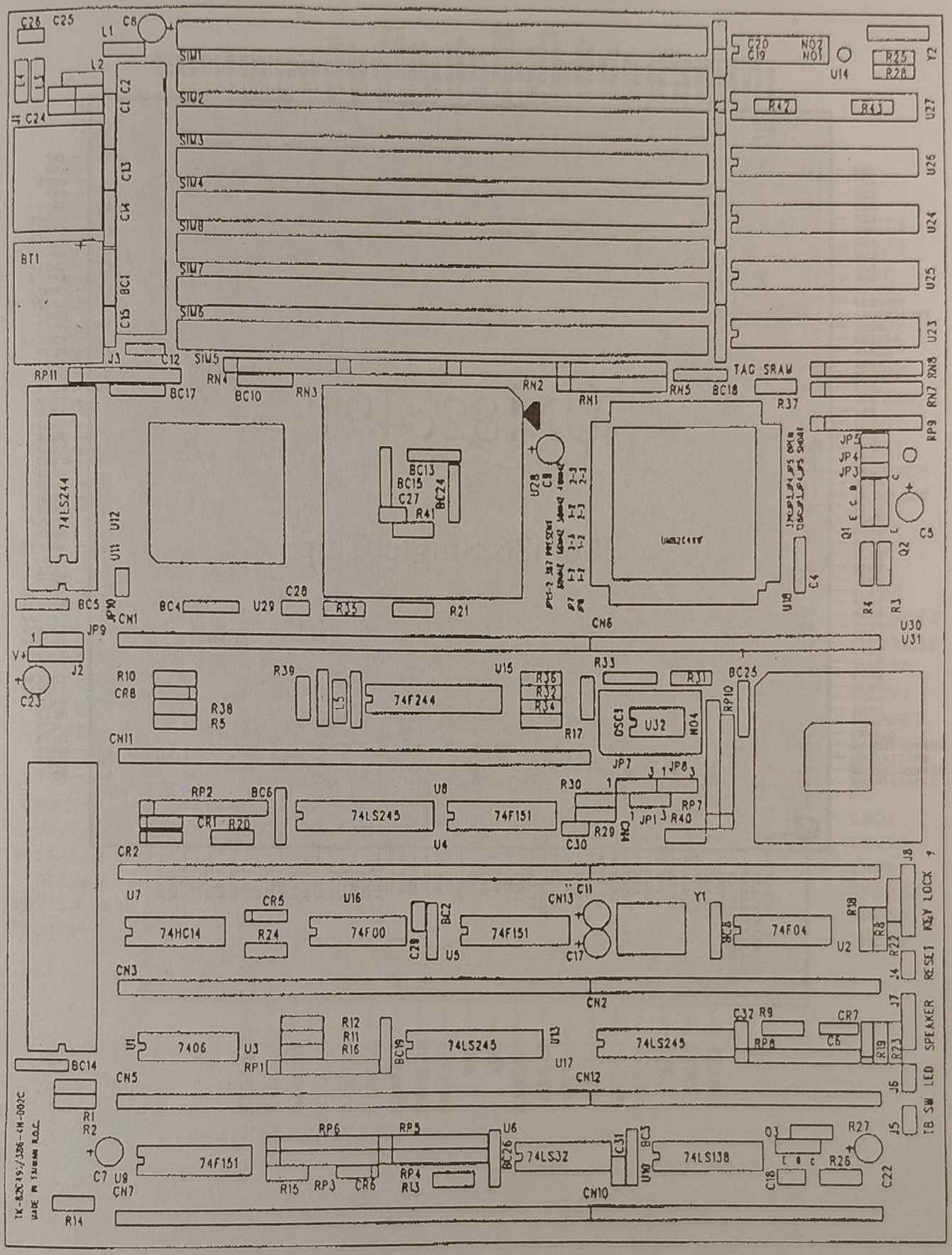
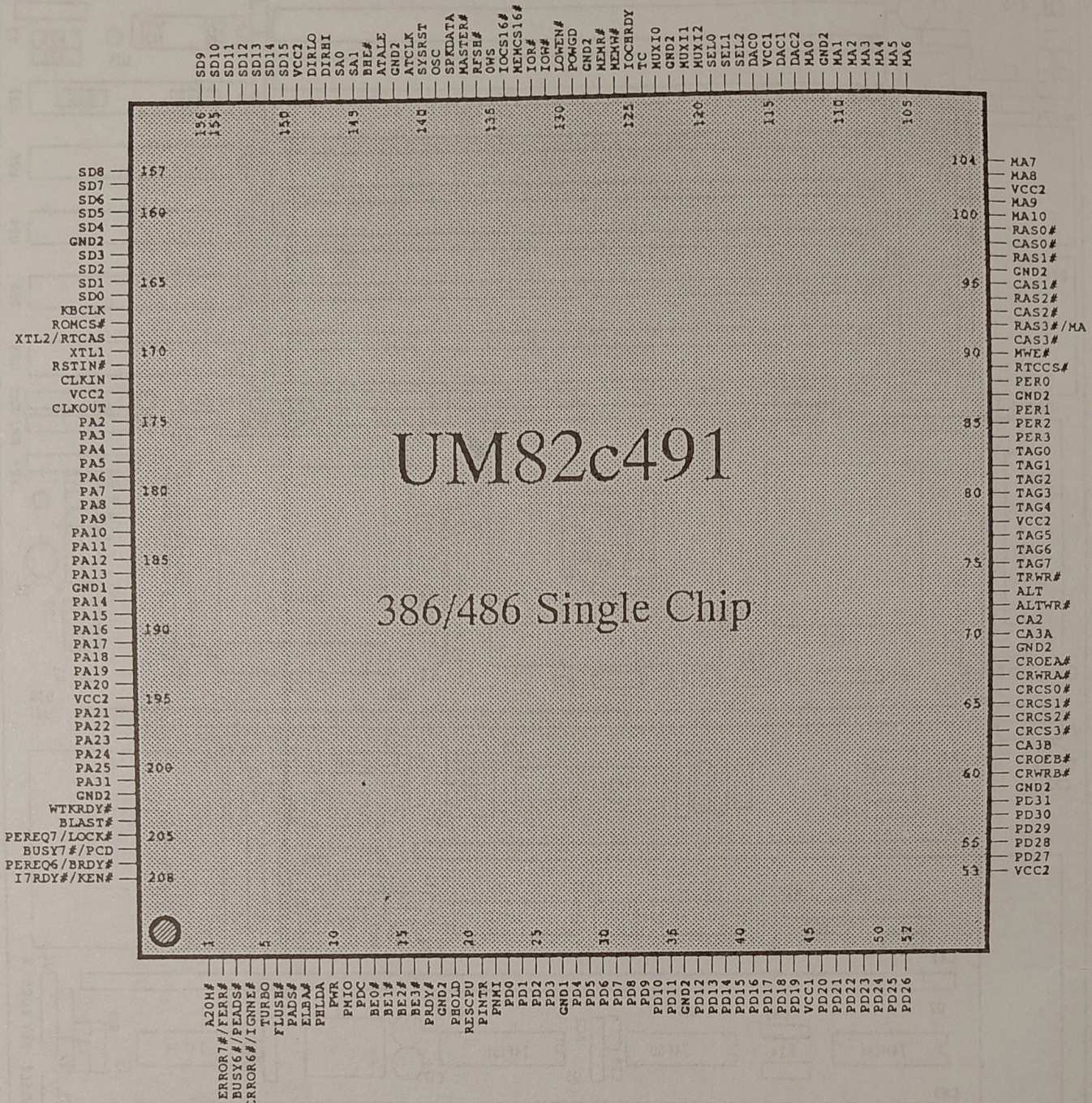
THE BEST MAIN BOARD HOUSE!!

386DX MAIN BOARD

USER'S MANUAL



TK-82C491/386-4N-D02C


UM82c491
386/486 Single Chip
SD8
SD7
SD6
SD5
SD4
GND2
SD3
SD2
SD1
SD0
KBCLK
ROMCS#
XTL2/RTCAS
XTL1
RSTIN#
CLKIN
VCC2
CLKOUT
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13
GND1
PA14
PA15
PA16
PA17
PA18
PA19
PA20
VCC2
PA21
PA22
PA23
PA24
PA25
PA31
GND2
WTKRDY#
BLAST#
PEREQ7/LOCK#
BUSY7#/PCD
PEREQ6/BRDY#
I7RDY#/KEN#
MA7
MA8
VCC2
MA9
MA10
RAS0#
CAS0#
RAS1#
GND2
CAS1#
RAS2#
CAS2#
RAS3#/MA
CAS3#
MWE#
RTCCS#
PER0
GND2
PER1
PER2
PER3
TAG0
TAG1
TAG2
TAG3
TAG4
VCC2
TAG5
TAG6
TAG7
TRWR#
ALT
ALTWR#
CA2
CA3A
GND2
CROEA#
CRWRA#
CRCS0#
CRCS1#
CRCS2#
CRCS3#
CA3B
CROEB#
CRWRB#
GND2
PD31
PD30
PD29
PD28
PD27
VCC2
A20M#
ERROR7#/FERR#
BUSY6#/PEADS#
ERROR6#/IGNNE#
TURBO
FLUSH#
PADS#
ELBA#
PHLDA
PWR
PMIO
PDC
BE0#
BE1#
BE2#
BE3#
PRDY#
GND2
PHOLD
RESCPU
PINTR
PNMI
PD0
PD1
PD2
PD3
GND1
PD4
PD5
PD6
PD7
PD8
PD9
PD10
PD11
GND2
PD12
PD13
PD14
PD15
PD16
PD17
PD18
PD19
VCC1
PD20
PD21
PD22
PD23
PD24
PD25
PD26
SD9
SD10
SD11
SD12
SD13
SD14
SD15
VCC2
DIRLO
DIRHI
SA0
SA1
BHE#
ATALE
GND2
ATCLK
SYSRST
OSC
SPKDATA
MASTER#
RFSH#
0WS
IOCS16#
MEMCS16#
IOR#
IOW#
LOWEN#
POWGD
GND2
MEMR#
MEMW#
IOCHRDY
TC
MUXI0
GND2
MUXI1
MUXI2
SEL0
SEL1
SEL2
DAC0
VCC1
DAC1
DAC2
MA0
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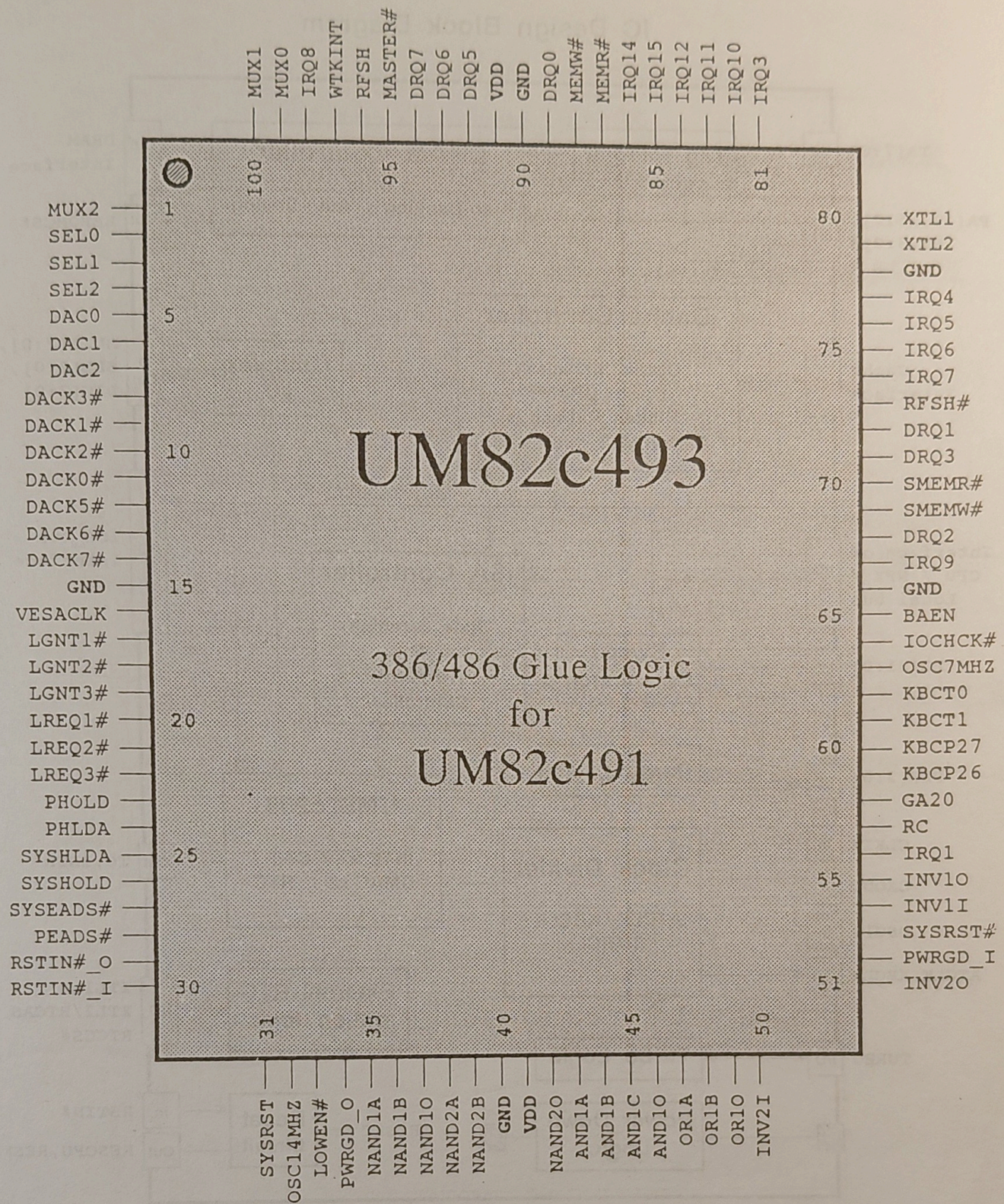
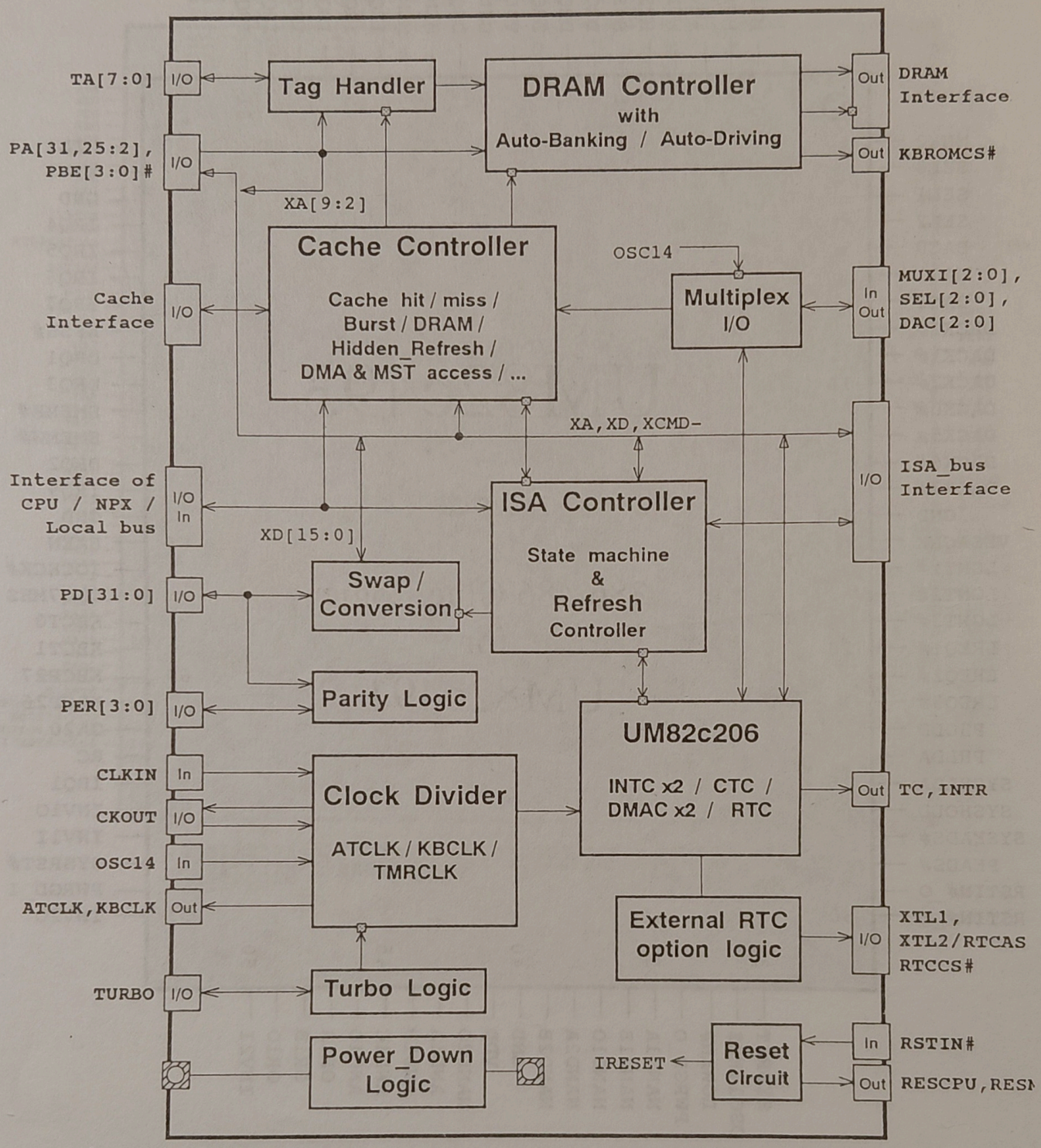
MA1
MA2
MA3
MA4
MA5
MA6


UM82c493
386/486 Glue Logic
for
UM82c491
MUX2
SEL0
SEL1
SEL2
DAC0
DAC1
DAC2
DACK3#
DACK1#
DACK2#
DACK0#
DACK5#
DACK6#
DACK7#
GND
VESACLK
LGNT1#
LGNT2#
LGNT3#
LREQ1#
LREQ2#
LREQ3#
PHOLD
PHLDA
SYSHLDA
SYSHOLD
SYSEADS#
PEADS#
RSTIN#_O
RSTIN#_I
MUX1
MUX0
IRQ8
WTKINT
RFSH
MASTER#
DRQ7
DRQ6
DRQ5
VDD
GND
DRQ0
MEMW#
MEMR#
IRQ14
IRQ15
IRQ12
IRQ11
IRQ10
IRQ3
XTL1
XTL2
GND
IRQ4
IRQ5
IRQ6
IRQ7
RFSH#
DRQ1
DRQ3
SMEMR#
SMEMW#
DRQ2
IRQ9
GND
BAEN
IOCHCK#
OSC7MHZ
KBCT0
KBCT1
KBCP27
KBCP26
GA20
RC
IRQ1
INV1O
INV1I
SYSRST#
PWRGD_I
INV2O
SYSRST
OSC14MHZ
LOWEN#
PWRGD_O
NAND1A
NAND1B
NAND1O
NAND2A
NAND2B
GND
VDD
NAND2O
AND1A
AND1B
AND1C
AND1O
OR1A
OR1B
OR1O
INV2I

IC Design Block Diagram



** FEATURE

- 100% PC/AT COMPATIBLE SINGLE CHIP
- SUPPORT PROCESSOR SYSTEM OF :
  . 80386DX 16/20/25/33/40 MHZ IN 2 x CLOCK
  . 80387(INTEL, CYREX, TI, IIT)
  . 486DLC
- SUPPORT HARDWARE AND SOFTWARE TURBO CONTROL
- BUILT IN CACHE CONTROLLER:
  . DIRECT MAY PLACEMENT STRATEGY.
  . WRITE BACK REPLACEMENT
  . ZERO WAIT STATE FOR CACHE READ HIT.
  . FLEXIBLE CACHE RAM SIZE AT 128KB.
- HIDDEN REFRESH TO REDUCE REFRESH OVERHEAD
- SUPPORT FOUR BANKS DRAM WITH MEMORY SIZE UP TO 64MB.
- SUPPORT FAST GATE Z20
- AVAILABLE BIOS IN AWARD WITH GREEN PC FUNCTION AND AMI.
- 5PCS SLOT OF 16BIT,1PC SLOT OF 8BIT

DRAM SIMM SOCKETS

system board will support 2 DRAM banks, Bank 0 and Bank 1 in SIMM sockets, on board.

With the use of 256Kx9, 1Mx9 or 16Mx9 DRAM modules, 1M and upto 64 M of local memory can be attained. Please refer to the following table for the detailed installation.

memory size		bank 0	bank 1
1 M	==>	256K	
2 M	==>	256K	256K
5 M	==>	256K	1M
20 M	==>	1M	4M
4 M	==>	1M	
8 M	==>	1M	1M
16 M	==>	4M	
32 M	==>	4M	4M
64 M	==>	16M	

The corresponding part reference are as below:

Bank 0 – SIM 1, SIM 2, SIM 3, SIM 4 (SIMM SOCKET)
Bank 1 – SIM 5, SIM 6, SIM 7, SIM 8 (SIMM SOCKET)

CONNECTORS

A connector is two or more pins that are used to make connections to the system standard accessories (such as power, battery, etc.)
The following is a list of connectors on board, as well as descriptions of each individual connector.

(A) BT1 Rechargeable Battery

Pin #	Assignment
1	Battery Positive
2	Ground

(B) J6 3.6V External Battery

Pin #	Assignment
1	Battery Positive
2	Internal Battery Positive
3	Ground
4	Ground

Note: If EXT Battery is not installed, close pin 1 & 2 of JP 1 to select internal Battery

(C) J2 Keyboard

Pin #	Assignment
1	Keyboard Clock
2	Keyboard Date
3	No Connection
4	Ground
5	+ 5V DC

(D) JP7 Power Connector

Pin #	Assignment
1	No Connection
2	+ 5V DC
3	+ 12V DC
4	- 12V DC
5	Ground
6	Ground
7	Ground
8	Ground
9	- 5V DC
10	+ 5V DC
11	+ 5V DC
12	+ 5V DC

(E) J5 Turbo LED

Pin #	Assignment
1	Pullup (+ 5V DC)
2	Turbo control

(F) J10 Speaker

Pin #	Assignment
1	Speaker Data
2	No Connection
3	Ground
4	+ 5V DC

(G) J4 Turbo Switch

Pin #	Assignment	Pin 1 & 2	Function
1	Pullup (+ 5V DC)	Open	Non-Turbo
2	Turbo Control	Closed	Turbo

(H) J1 Front Panel Key Lock and Power LED

Pin #	Assignment
1	Power LED
2	No Connection
3	Ground
4	Keyboard Lock
5	Ground

(I) J3 Reset Switch

Pin #	Assignment	Pin 1 & 2	Function
1	Reset control	Open	No action
2	Ground	Closed	Reset

(J) JP6 2-3 387 PRESENT

(K) JP8 2-3 387 DEFAULT

SOFTWARE SETUP

After hardware configuration of the FOREX 486 Cache system board is completed, and system hardware has been assembled, the completed system may be powered-up. At this system hardware has been assembled, the completed system may be powered-up. At this point, software setup should be run to ensure that the system information is correct, and that the configuration registers in FOREX 486 Chipset do not need to be modified. The chipset provides certain features which can be accessed by software setup (such as system speed, bus speed, shadow RAM etc.). This flexibility allows the system to be tailored (via software setup) at anytime to meet the requirements of certain specific operating environments.

Software setup is achieved through BIOS programming, although the BIOS from different vendors will have different sequences and displays, the setup elements or options will be the same. Please refer to Appendix A for BIOS setup.

SYSTEM SETUP

The system setup is sometimes called CMOS setup or standard setup. Normally, system setup is needed when the system hardware is not identical with the information contained in the CMOS RAM, or whenever, the CMOS RAM has lost power.

The setup procedure is generally listed below:

(a) Enter into the setup routine
(b) Modify the target option(s)
(c) Save the change(s) and exit from setup
(d) Reboot the system

Basically, the system elements that need to be setup are as follows:

(1) Date and time
(2) Floppy disk quantity and type
(3) Hard disk quantity and type
(4) Amount of memory

(5) Video display type

EXTENDED SETUP

The extended setup is used to modify the contents of the configuration registers in the FOREX 486 chipset. The following is the procedure for extended setup:

(a) Enter into the setup routine
(b) Modify the target option(s)
(c) Save the change(s) and exit from setup
(d) Reboot the system

AWARD BIOS
CMOS SETUP UTILITY

Version 4.50

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Documentation Revision 1.0

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Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

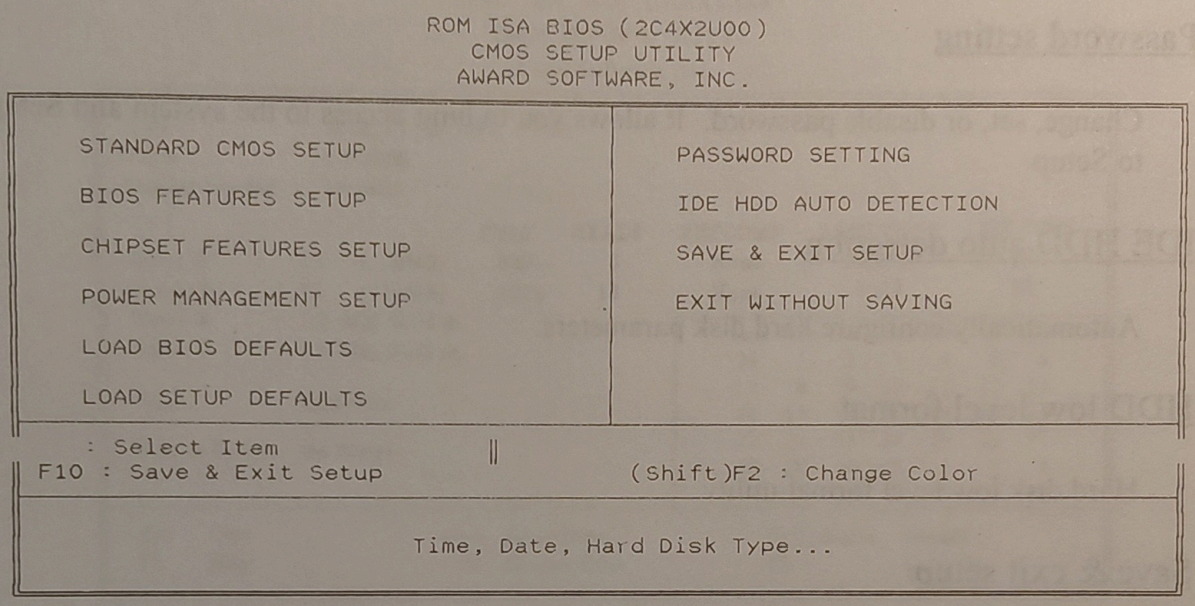
Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Change color from total 16 colors
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Figure 1 Main Menu



Standard CMOS setup

This setup page includes all the items in a standard compatible BIOS.

BIOS features setup

This setup page includes all the items of Award special enhanced features.

Chipset features setup

This setup page includes all the items of chipset special features.

Power-on with BIOS defaults

BIOS defaults indicates the most appropriate value of the system parameter which the system would be in maximum performance. However, you may change the parameter value through

the Option Page Setup Menu. The OEM manufacturer may change the defaults through MODBIN before the binary image burn into the ROM.

Power-on with chipset defaults

Chipset defaults indicates the values required by the system for the minimum performance. However, you may change the parameter through the Option Page Setup Menu. The OEM manufacturer may change to defaults through MODBIN before the binary image burn into the ROM.

Password setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

IDE HDD auto detection

Automatically configure hard disk parameters.

HDD low level format

Hard disk low level format utility.

Save & exit setup

Save CMOS value changes to CMOS and exit setup.

Exit without save

Abandon all CMOS value changes and exit setup.

Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

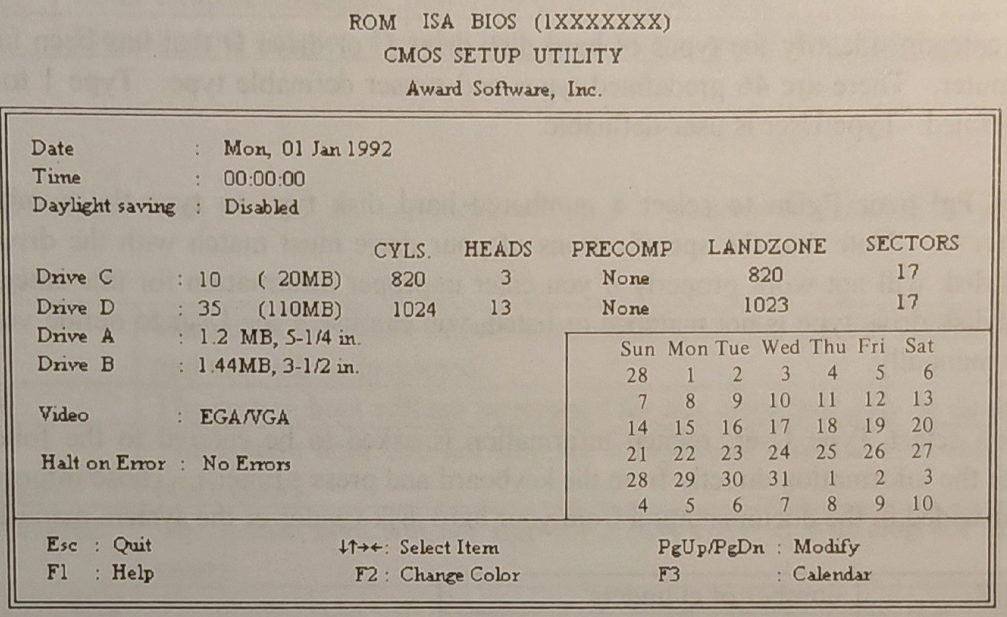
Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure 2 Standard CMOS Setup Menu


ROM ISA BIOS (1XXXXXXX)
CMOS SETUP UTILITY
Award Software, Inc.
Date : Mon, 01 Jan 1992
Time : 00:00:00
Daylight saving : Disabled
CYLS. HEADS PRECOMP LANDZONE SECTORS
Drive C : 10 (20MB) 820 3 None 820 17
Drive D : 35 (110MB) 1024 13 None 1023 17
Drive A : 1.2 MB, 5-1/4 in.
Drive B : 1.44MB, 3-1/2 in.
Video : EGA/VGA
Halt on Error : No Errors
Sun Mon Tue Wed Thu Fri Sat
28 1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31 1 2 3
4 5 6 7 8 9 10
Esc : Quit
F1 : Help
↓↑→←: Select Item
F2 : Change Color
PgUp/PgDn : Modify
F3 : Calendar

Date

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec
year	The year, from 1900 through 2099

Time

The time format is <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

Daylight saving

The category adds one hour to the clock when daylight-saving time begins. It also subtracts one hour when standard time begins.

Enabled	Enable daylight-saving
Disabled	Disable daylight-saving

Drive C type/Drive D type

The category identify the types of hard disk drive C or drive D that has been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Type 46 are predefined. Type User is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

Drive A type/Drive B type

The category identify the types of floppy disk drive A or drive B that has been installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

The category selects the type of adapter used for the primary system monitor that must matches your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Error halt

The category determines whether the computer will stop if an error is detected during power up.

No errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All errors	The system boot will not be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

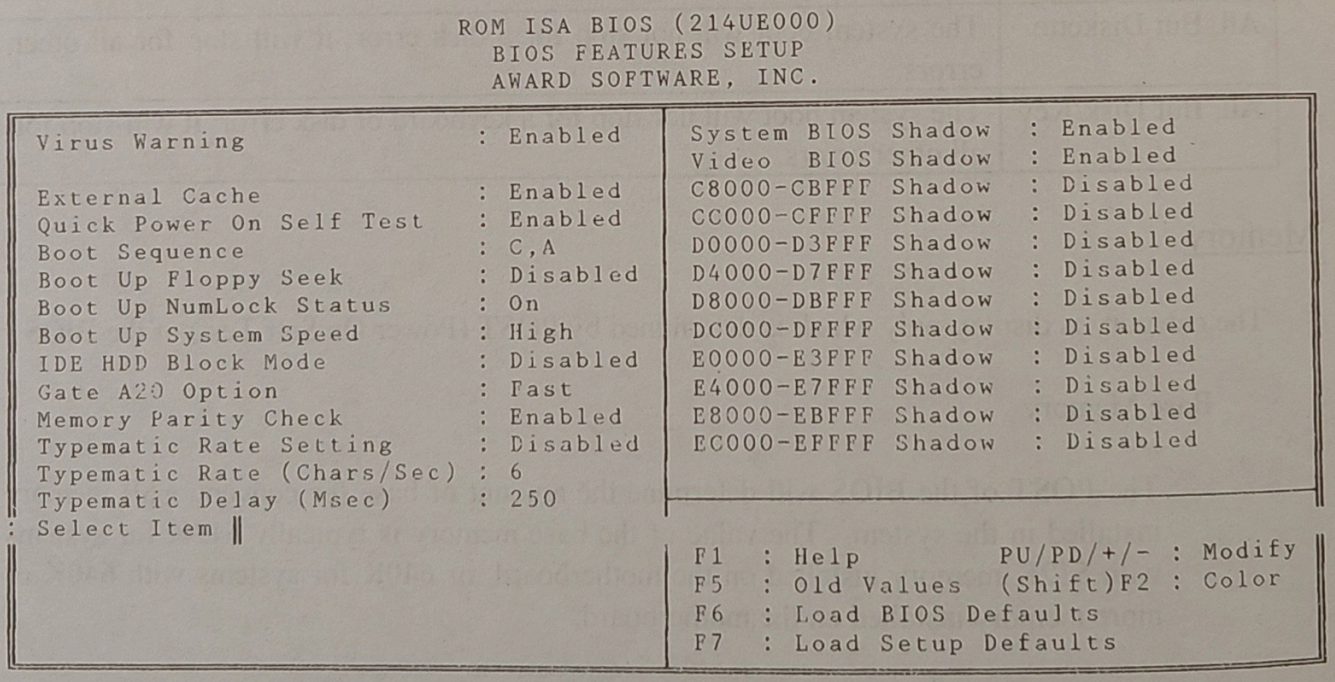
Expanded Memory

Expanded Memory is memory defined by the Lotus/Intel/Microsoft (LIM) standard as EMS. Many standard DOS applications can not utilize memory above 640K, the Expanded Memory Specification (EMS) swaps memory which not utilized by DOS with a section, or frame, so these applications can access all of the system memory. Memory can be swapped by EMS is usually 64K within 1MB or memory above 1MB, depends on the chipset design.

Expanded memory device driver is required to use memory as Expanded Memory.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.


ROM ISA BIOS (214UE000)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.
Virus Warning : Enabled
External Cache : Enabled
Quick Power On Self Test : Enabled
Boot Sequence : C,A
Boot Up Floppy Seek : Disabled
Boot Up NumLock Status : On
Boot Up System Speed : High
IDE HDD Block Mode : Disabled
Gate A20 Option : Fast
Memory Parity Check : Enabled
Typematic Rate Setting : Disabled
Typematic Rate (Chars/Sec) : 6
Typematic Delay (Msec) : 250
: Select Item
System BIOS Shadow : Enabled
Video BIOS Shadow : Enabled
C8000-CBFFF Shadow : Disabled
CC000-CFFFF Shadow : Disabled
D0000-D3FFF Shadow : Disabled
D4000-D7FFF Shadow : Disabled
D8000-DBFFF Shadow : Disabled
DC000-DFFFF Shadow : Disabled
E0000-E3FFF Shadow : Disabled
E4000-E7FFF Shadow : Disabled
E8000-EBFFF Shadow : Disabled
EC000-EFFFF Shadow : Disabled
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift)F2 : Color
F6 : Load BIOS Defaults
F7 : Load Setup Defaults

Virus Warning

This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you run can anti-virus program to locate the problem.

```
! WARNING !
Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
Award Software, Inc.
```

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is disable.

Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive computer searches first for the disk operating system (i.e., DOS). Default value is A,C.

C,A	System will first search for hard disk drive then floppy disk drive.
A,C	System will first search for floppy disk drive then hard disk drive.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

Boot Up System Speed

It selects the default system speed - the speed that the system will run at immediately after power up.

High	Set the speed to high
Low	Set the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode
Disabled	Disable IDE HDD Block Mode

Gate A20 Option

Normal	keyboard
Fast	chipset

Memory Parity Check

Enabled	Normal memory parity check
Disabled	Ignore memory parity check

Typematic Rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate
Disabled	Disable typematic rate

Typematic Rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

When hold a key, the time between the first and second character displayed.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. For both system & configure setup.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. For configure setup only.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

System BIOS Shadow

It determines whether system BIOS will be copied to RAM, however, it is optional from chipset design. System Shadow will improve the system performance.

Enabled	System shadow is enabled
Disabled	System shadow is disabled

Video BIOS Shadow

It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CBFFF Shadow/EC000 - EFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

Chipset Features Setup Menu

The items in this menu varies from chipset and motherboard design. Therefore, they will not be listed in this User's Guide.

```
                    ROM ISA BIOS (2J4UE000)
                     CHIPSET FEATURES SETUP
                      AWARD SOFTWARE, INC.

Auto Confiuration          : Enabled

AT Clock Selection         : CLKI/5
DRAM Read Wait State       : 0 WS
DRAM Write Wait State      : 0 WS
Speed Up DRAM Access       : Enabled
CAS Delay By 1T State      : Enabled
Hidden Refresh Option      : Enabled
Fast AT Cycle              : Enabled
Single ALE Control         : Disabled
Back To Back I/O Delay     : Enabled

Burst Wait State           : 1 WS
CACHE Read Burst Cycle     : 2-1-1-1
: Select Item
CA32S Inactive Delay at    : Middle of T2
Video BIOS Cacheable       : Enabled

F1  : Help          PU/PD/+/- : Modify
F5  : Old Values    (Shift)F2 : Color
F6  : Load BIOS Defaults
F7  : Load Setup Defaults
```

Password Setting

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

Power-On Boot

After you have made all the changes to CMOS values and the system can not boot with the CMOS values selected in Setup, restart the system by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and <Delete> keys. Upon restart the system, immediately press <Insert> to load BIOS default CMOS value for boot up.

IDE HDD AUTO DETECTION

Automatically configure hard disk parameters.

ROM ISA BIOS (219J30IW)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

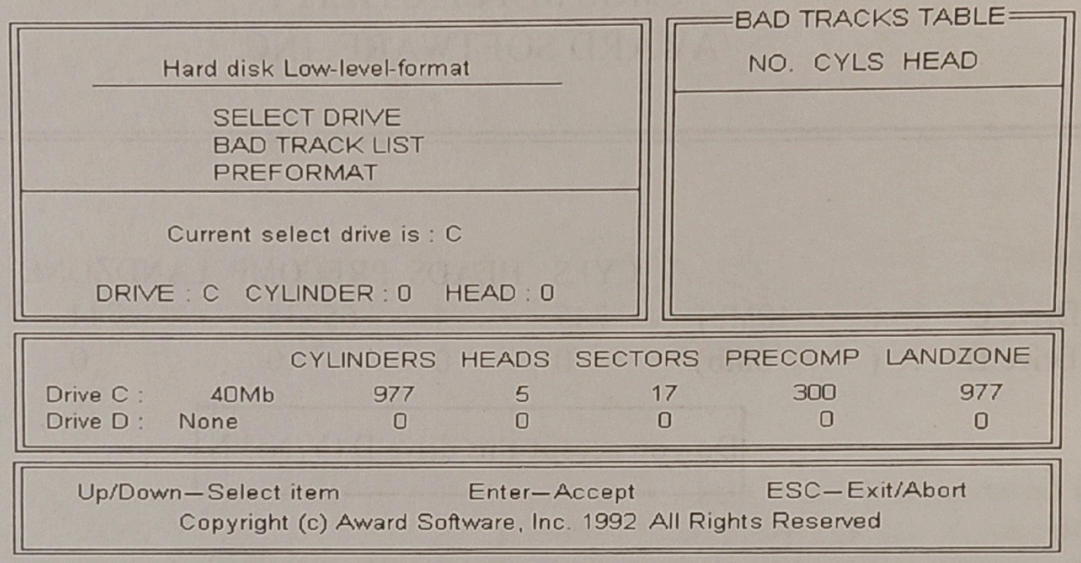
		CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS
Drive C : (40Mb)		745	4	65535	744	28
Drive D : (0Mb)		0	0	0	0	0

Do you accept this drive D (Y/N)? N

Hard Disk Low Level Format Utility

This Award Low-Level-Format Utility is designed as a tool to save your time formatting your hard disk. The Utility automatically looks for the necessary information of the drive you selected. The Utility also searches for bad track and list them for your reference.

Shown below is the Main Menu after you enter into Award Low-Level-Format Utility.


Hard disk Low-level-format
SELECT DRIVE
BAD TRACK LIST
PREFORMAT
Current select drive is : C
DRIVE : C CYLINDER : 0 HEAD : 0
BAD TRACKS TABLE
NO. CYLS HEAD
CYLINDERS HEADS SECTORS PRECOMP LANDZONE
Drive C : 40Mb 977 5 17 300 977
Drive D : None 0 0 0 0 0
Up/Down—Select item Enter—Accept ESC—Exit/Abort
Copyright (c) Award Software, Inc. 1992 All Rights Reserved

Control Keys

Use the Up and Down arrow keys to move around the selections displayed on the upper screen. Press [Enter] to accept the selection. Press Esc to abort the selection or exit the Utility.

SELECT DRIVE

Select from installed hard disk drive C or D. List at the bottom of the screen is the drive automatically detected by the utility.

BAD TRACK LIST

Auto scan bad track

The utility will automatically scan bad tracks and list the bad tracks in the window at the right side of the screen.

Add bad track

Directly type in the information of the known bad tracks in the window at the right side of the screen.

Modify bad track

Modify the information of the added bad tracks in the window at the right side of the screen.

Delete bad track

Delete the added bad tracks in the window at the right side of the screen.

Clear bad track table

Clear the whole bad track list in the window at the right side of the screen.

PREFORMAT

Interleave

Select the interleave number of the hard disk drive you wish to perform low level format. You may select from 1 to 8. Check the documentation came with the drive for the correct interleave number, or select 0 for utility automatic detection.

Auto scan bad track

This allows the utility to scan first then format by each track.

Start

Press <Y> to start low level format.

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP will be shown in the information box at the bottom.

POST Beep

Currently there is only one beep code in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes message for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct,

and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA Configuration Checksum Error
PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA Configuration Is Not Complete
PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

*** Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

Invalid EISA Configuration
PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

*** NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configurating the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system will the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should Be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configurated as having no board ID.

*** NOTE; When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

*** NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

*** NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

*** NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

BIOS Reference - BIOS Default Drive Table

This is a current list of the drive type table contained in Setup.

Type	Size (MB)	Cylinders	Heads	Sectors	Write Precomp	Land Zone	Example Model
1	10	306	4	17	128	305	TEAC SD510, MMI 112, 5412
2	20	615	4	17	300	615	Seagate ST225, ST4026
3	30	615	6	17	300	615	
4	62	940	8	17	512	940	
5	46	940	6	17	512	940	
6	20	615	4	17	None	615	Seagate ST125, Tandon TM262
7	30	462	8	17	256	511	
8	30	733	5	17	None	733	Tandon TM 703
9	112	900	15	17	None	901	
10	20	820	3	17	None	820	
11	35	855	5	17	None	855	
12	49	855	7	17	None	855	
13	20	306	8	17	128	319	Disctron 526, MMI M125
14	42	733	7	17	None	733	
15		Reserved					
16	20	612	4	17	0	663	Microscience HH725, Syquest 3250, 3425
17	40	977	5	17	300	977	
18	56	977	7	17	None	977	
19	59	1024	7	17	512	1023	
20	30	733	5	17	300	732	
21	42	733	7	17	300	732	
22	30	306	5	17	300	733	Seagate ST4038
23	10	977	4	17	0	336	
24	40	1024	5	17	None	976	Seagate ST4051
25	76	1224	9	17	None	1023	Seagate ST4096
26	71	1224	7	17	None	1223	Maxtor 2085
27	111	1224	11	17	None	1223	Maxtor 2140, Priam S14
28	152	1024	15	17	None	1223	Maxtor 2190, Priam S19
29	68	1024	8	17	None	1023	Maxtor 1085, Micropolis 1325
30	93	918	11	17	None	1023	Maxtor 1105 1120, 4780
31	83	925	11	17	None	1023	Maxtor 1170
32	69	1024	9	17	None	926	CDC 9415

33	85	1024	10	17	None	1023	
34	102	1024	12	17	None	1023	
35	110	1024	13	17	None	1023	
36	119	1024	14	17	None	1023	
37	17	1024	2	17	None	1023	
38	136	1024	16	17	None	1023	
39	114	918	15	17	None	1023	Maxtor 1140, 4380
40	40	820	6	17	None	820	Seagate ST251
41	42	1024	5	17	None	1023	Seagate 4053 Miniscribe 3053/6053
42	65	1024	5	26	None	1023	Miniscribe 3053/6053 RLL
43	40	809	6	17	None	852	Miniscribe 3650
44	61	809	6	26	None	852	Miniscribe 3675 RLL
45	100	776	8	33	None	775	Conner CP3104
46	203	684	16	38	None	685	Conner CP3204
User							

GREEN PC FUNCTION OPERATION

```
ROM ISA BIOS (2C4X2U00)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management      : Disabled

HDD Standby Timer     : Disabled
Display Power Down    : Disabled
System Slow Down      : Disabled
System Power Down     : Disabled

: Select Item

F1  : Help          PU/PD/+/- : Modify
F5  : Old Values    (Shift)F2 : Color
F6  : Load BIOS Defaults
F7  : Load Setup Defaults
```

CONGRATULATION !! YOU GOT A POTENT MOTHER BOARD WITH GREEN PC FUNCTION !

GREEN PC FUNCTION INTRODUCTION:

* SYSTEM SPEED REDUCE DOWN
* HDD STAND BY SITUATION
* MONITOR POWER DOWN AND DISPLAY CUT OFF

OPERATIONS:

* PLS SELECT "POWER MANAGEMENT SETUP" ON MAIN MANUL OF BIOS
* SUGGESTING USER DEFAULT AS FINGURE TABLE
* "SYSTEM POWER DOWN" ALWAYS SET AT "DISABLE" UNLESS GREEN SWITCHING POWER AVAILABLE.
* IF UNAVAILABLE "GREE S/P", YOUR BOARD STILL EFECTIVE REDUCE LOWER POWER.

NOTE:

* PLS SET "DISABLE" WHILE UNDER TESTING PROGRAMMER & SYSTEM BURNNING.
* PRESS "SHIFT" KEY FOR WAKING UP FROM IDLE SITUATION.
* OTHERS KEY ALSO SAME FUNCTION, BUT IT LEAV CHARACTOR ON MONITOR--LIKING TO GIVE A COMMENDOR.
* IN CASE OF "KEEP PRESS ANYONE SAME KEY CONTINULY" SAME AS NORMAL SITUATION.

  MONITOR SCREEN DISAPPEAR AFTER SETUP TIMING

MEMO